REMARKS

Claims 1 to 27, 37 and 39 remain pending in the application, with claims 1, 37 and 39 being the independent claims. Reconsideration and further examination are respectfully requested.

In the Office Action, claims 1 to 18, 21 to 27, 37 and 39 were rejected under 35 U.S.C. § 103(a) over U.S. Patent 6,125,355 (Bekaert); and claims 19 and 20 were rejected under §103(a) over Bekaert in view of U.S. Patent 6,018,722 (Ray). Withdrawal of these rejections is respectfully requested for the following reasons.

As noted in previous communications, the present invention concerns systems, methods and techniques for estimating the future tendency of the value of an asset to change based on a change in one or more exogenous variables. Thus, for example, the techniques of the present invention might be utilized to project future price sensitivities or elasticities based on predictions for such exogenous variables. See, e.g., page 12, lines 10-15. Allowing one to predict, e.g., the future price sensitivity of a particular asset to fluctuations in other measures and variables often can permit better management of, and/or accounting for, specified types of risk (e.g., risk based on interest rate fluctuations).

The present invention's techniques for generating estimates of price sensitivities, price elasticities or other measures of a tendency of the value of an asset to change based on changes in one or more exogenous variables is believed to be novel and non-obvious over the prior art. In particular, such a technique is believed to be clearly non-obvious over the presently applied art, for at least the following reasons.

Independent claims 1, 37 and 39 are directed to a method for evaluating an asset. Initially, historical data for the value of an asset and historical data values for plural exogenous variables are processed to obtain a formula for calculating a measure of a tendency of the value of the asset to change as a result of changes in the data values for the exogenous variables, the formula being a function of the exogenous variables. Projected data values for the exogenous variables are obtained, and a measure of the tendency of the value of the asset to change based on a change in at least one of the exogenous variables is estimated using the obtained formula and the input projected data values.

The foregoing combination of features is not disclosed or suggested by the applied art. In particular, the applied art does not disclose or suggest at least the feature of estimating a measure of the tendency of the value of an asset to change based on a change in at least one of plural exogenous variables, using an obtained formula and projected data values for the exogenous variables, where the formula has been obtained based on historical data for the value of an asset and historical data values for the exogenous variables.

Bekaert, the principal reference relied upon in the Office Action, primarily concerns asset pricing and is not seen to say anything at all about estimating a measure (e.g., price sensitivity or price elasticity) of the tendency of a value of an asset to change based on changes in one or more exogenous variables, much less about processing historical data for value of an asset and historical data values for plural exogenous variables to obtain a formula for calculating a measure of a tendency of the

value of the asset to change as a result of changes in the data values for the exogenous variables, with the formula being a function of the exogenous variables.

The specific portions of Bekaert cited in the Office Action as showing this feature have been reviewed in particular detail, but are not seen even to discuss the general concept of estimating a measure of the tendency of a value of an asset to change based on changes in one or more exogenous variables. Rather, column 1 lines 9-20 generally discusses pricing modules; column 2 lines 29-30 only mentions arbitrage-free pricing; column 3 line 47 to column 4 line 30 generally discusses Bekaert's pricing module, but apparently the only mention of sensitivity therein is in reference to the input parameters for Bekaert's pricing module (and this brief mention says nothing about a formula for calculating a measure of a tendency of the value of an asset to change as a result of changes in the data values for the exogenous variables); column 4 lines 60-62 simply notes that factor analysis is well-known in the art; column 6 lines 24-26 mentions the state variables for Bekaert's pricing module, none of which having any apparent relationship to the present feature of the invention; column 8 lines 1-3 simply refers to projection of inflation values; and claim 14 merely notes that in the claimed technique the estimated real rate of interest is determined based on a short-term nominal rate of interest and a value of inflation is based on expected inflation and the nominal short-term rate of interest.

Because Bekaert does not generate any formula for calculating a measure of a tendency of the value of the asset to change as a result of changes in the data values for exogenous variables, where the formula is a function of the exogenous variables, it

could not possibly disclose or suggest anything about obtaining projected data values

for such exogenous variables.

Apparently acknowledging that Bekaert does not provide any express disclosure

or suggestion of the foregoing features of the invention, the Office Action asserts that:

> "The input variables of the pricing module are interpreted to include
> historical data values and estimated prices include the step of estimating a
> formula for calculating a measure of a tendency of the value of the asset
> to change as a result of changes in the data values for the exogenous
> variables. Bekaert inherently teaches the step of estimating a measure of
> the tendency of the value of the asset to change based on a change in at
> least one of the exogenous variables using the formula obtained in step
> (a) and the projected data values input in step (b)."

While Applicants agree that the inputs to Bekaert's pricing module are historical data

values for certain economic variables, this aspect of Bekaert is believed to have little to

do with the present invention. Moreover, as noted above, Applicants are unable to find

anything in Bekaert that discloses or suggests obtaining a formula for estimating a price

sensitivity, price elasticity or any other measure of the tendency of the value of an asset

to change based on changes in one or more exogenous variables.

Based on the foregoing quotation, it appears that the Office Action is asserting

that most, if not all, of the limitations of the present claims are inherent in Bekaert. In

this regard, it has been held that:

> "To establish inherency, the *extrinsic evidence* [emphasis added] "must
> make clear that the missing descriptive matter is necessarily present in the
> thing described in the reference, and that it would be so recognized by
> persons of ordinary skill." Continental Can Co. v. Monsanto Co., 948 F.2d
> 1264, 1268, 20 U.S.P.Q.2d 1746, 1749 (Fed. Cir. 1991). 'Inherency,
> however, may not be established by probabilities or possibilities. The mere
> fact that a certain thing may result from a given set of circumstances is not
> sufficient.' Id. at 1269, 20 U.S.P.Q.2d at 1749 (quoting In re Oelrich, 666
> F.2d 578, 581, 212 U.S.P.Q. 323, 326 (C.C.P.A. 1981))."

In re Robertson, (Fed. Cir. 1999) 169 F.3d 743, 745; 49 U.S.P.Q.2d 1949.

Here, however, no <u>extrinsic evidence</u> has been cited to establish that the referenced features of the invention <u>necessarily</u> are present in Bekaert.

Furthermore, in the present invention, historical data values for plural exogenous variables are used to obtain the formula (which itself is a function of the exogenous variables), and then projected data values for the exogenous variables are used in connection with the obtained formula to estimate a measure of the tendency of the value of the subject asset to change. Bekaert, on the other hand, apparently only uses historical data values for certain economic variables in order to generate estimates of current asset prices. In Bekaert, there appears to be no step of obtaining projected values for such economic variables and using such projected data values in any manner similar to the presently recited technique.

Apparently as a backup rejection, the Office Action takes official notice that "the step of estimating a measure of the tendency of the value of the asset to change based on a change in at least one of the exogenous variables using the formula obtained in step (a) and the projected data values input in step (b) is old and well known in the art." To the extent that the Office Action is asserting that the entire step (c) recited in claim 1 and the corresponding limitations recited in claims 37 and 39, in the overall context of the remainder of the claim, is well-known, Applicants disagree. Such an assertion would not be "capable of instant and unquestionable demonstration as being well-known", as required, and therefore Applicants request citation of a reference to support that assertion, in accordance with the provisions of MPEP § 2144.03. On the other hand, if the Office Action is only asserting that, as a general matter, calculation of price

sensitivities, price elasticities and regression coefficients is well-known, Applicants agree. The latter will be assumed unless Applicants are notified to the contrary.

Apparently based on the official notice, the Office Action asserts that the foregoing features of the invention would have been obvious in view of the known use of regression coefficients. Specifically, the Office Action argues that by making the value of the asset in Bekaert's technique the dependent variable and by making Bekaert's economic variables the independent variables, one could estimate the effect of a change in Bekaert's input economic variables on the change in his calculated asset prices.

In response, it is noted that there is absolutely no motivation to modify Bekaert in any such manner. First, Bekaert does not appear to even remotely suggest the desirability of estimating price sensitivities, price elasticities or any other measure of the tendency of the value of an asset to change based on changes in other variables. Second, apparently the only mention of regression in Bekaert is at column 12, lines 62-65, which merely mentions the possibility of calculating a price-dividend ratio by a summation of polynomial terms of certain state variables using linear regression; Bekaert does not appear to say anything about regressing asset price against his input economic variables for any purpose whatsoever. Third, the present claims recite that the formula for calculating the a measure of the tendency of the value of an asset to change as a result of changes in the data values for exogenous variables is itself a function of the exogenous variables; this does not appear to be disclosed or suggested anywhere in Bekaert. Finally, even if Bekaert disclosed such a regression (and it clearly does not), there still would have been no motivation to obtain projected data values for

the exogenous variables and to use such projected data values in connection with the recited formula in order to estimate a measure of the tendency of the value of an asset to change. In short, the teachings of Bekaert would have to be substantially supplemented and modified in order to achieve the present invention, and the only motivation to do so would have to be based on Applicants' own disclosure, which of course is impermissible hindsight.

With regard to motivation to combine prior art teachings, the Federal Circuit has held as follows:

> "This factual question of motivation is material to patentability, and could not be resolved on subjective belief and unknown authority. It is improper, in determining whether a person of ordinary skill would have been led to this combination of references, simply to "[use] that which the inventor taught against its teacher." [citation omitted]

In re Lee, 277 F.3d 1338, 1343-44 (2002)

> "In its decision on [the subject] patent application, the Board rejected the need for "any specific hint or suggestion in a particular reference" to support the combination of the [applied art] references. 'Omission of [such] a relevant factor required by precedent is both legal error and arbitrary agency action.'"

Id. at 1344.

Here, no reference has been cited that would suggest incorporating the use of regression coefficients in any manner whatsoever into Bekaert's pricing modules, much less in any manner that would have resulted in the present invention.

As set forth above, many of the features of independent claims 1, 37 and 39 are neither disclosed nor suggested by Bekaert. Ray also has been reviewed, but is not seen to supply the teaching that is missing from Bekaert. Accordingly, claims 1, 37 and

39, together with their dependent claims, are believed to be allowable over the applied art.

In addition to the foregoing remarks, each dependent claim in the application recites at least one additional feature that is not believed to be disclosed or suggested by the applied art. Accordingly, the individual reconsideration of each on its own merits, particularly in view of the foregoing remarks, is respectfully requested.

In the rejections of certain of the dependent claims, the Office Action takes official notice of various facts. To the extent that the Office Action is asserting that such facts are well-known in the context of the present invention, Applicants disagree and request citation of a reference in support of such an assertion, in accordance with MPEP § 2144.03.

For example, the Office Action asserts, "the step of determining the reliability of the estimated model and selecting a subset of assets based on the reliability of the models are well known in the art." While attempting to determine the reliability of a model may be well-known as a general matter, the quoted statement appears to go beyond such a generalization, and therefore Applicants request citation of a reference in support of this assertion.

In other cases, it is not as clear whether the Office Action is taking official notice of a general fact or a specific statement pertaining to the present invention. In each case, the former will be assumed unless Applicants are notified otherwise and an appropriate reference supporting such a statement is supplied.

Based on the foregoing remarks, the entire application is believed to be in condition for allowance, and an indication to that effect is respectfully requested.

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Respectfully submitted,

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